

Exemption No. 6425A

**UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION
RENTON, WASHINGTON 98055-4056**

In the matter of the petition of

Boeing Commercial Airplane Group

for an exemption from § 25.562(b)(2) of
Title 14, Code of Federal Regulations

Regulatory Docket No. 28452

GRANT OF EXEMPTION

By letter dated May 17, 1999, Mr. Norman I. Lee, III, Manager, Certification, Certification Programs, B-H320, Boeing Commercial Airplane Group, P.O. Box 3707, Seattle, WA, 98124-2207, petitioned for exemption from § 25.562(b)(2), of Title 14, Code of Federal Regulations (14 CFR), as amended by Amendment 25-64. The proposed exemption, if granted, would permit relief from the floor warpage testing requirement for flight deck seats on Boeing Model 737-700C/-900 airplanes.

The petitioner requests relief from the following regulations:

Section 25.562(b)(2), as amended by Amendment 25-64, requires the floor tracks used to attach the seat to the floor to be misaligned with respect to the adjacent seat tracks by at least 10 degrees vertically (i.e., out of parallel), with one rolled 10 degrees. The misalignment is used during the forward loading dynamic test condition and applies to both crew and passenger seats.

The petitioner's supportive information is as follows:

"The Boeing Models 737-700C/-900 are the next Boeing aircraft that will comply with the requirements of [Federal Aviation Regulations] FAR 25.562 as agreed to in the G-1 Issue Paper. Accordingly, there are provisions of FAR 25.562 which the Boeing Models 777-200, 737-600-700-800 and 757-300 were not required to meet, specifically the floor warpage testing requirements.

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"The 777-200, 757-300 and 737-600-700-800 were exempt from this requirement based on the following justification:

"FAR 25.562 states that, ' . . . where floor rails or floor fittings are used to attach the seating devices to the test fixture, the rails or fittings must be misaligned with respect to the adjacent set of rails or fittings by at least 10 degrees vertically (i.e., out of parallel) with one rolled 10 degrees.'

"The preamble to Amendment 25-64 states: 'Crash investigations have shown that localized cabin floor deformation can occur in survivable crashes. This has been confirmed by the controlled impact demonstration and drop tests involving transport category airplanes. The inability of some seats to accommodate such deformations, remain in place, and restrain the occupants can contribute significantly to [the] degree of injury during a crash. The simulated floor deformation used in the dynamic tests will demonstrate the tolerance of the seat and its attachments to deformations that could occur in an actual crash.'

"The preamble also states the benefit of this amendment is believed to be that '...some lives are expected to be saved that otherwise may not have been.'

"This test requirement makes no distinction between passenger and crew seats, while the evidence mentioned in the preamble is believed to be based on passenger seats only. There is evidence to suggest that floor warpage has not been a significant factor in flight deck seat failures during survivable crash conditions.

"The FAA acknowledged in the preamble to Amendment 25-64 that the likelihood of seats designed to meet this amendment costing more to manufacture and therefore to purchase, as well as increasing the airplane operating cost due to a weight increase. In order to justify the increased costs, it must be expected that some lives will be saved that otherwise may not have been. This does not appear to be the case for flight deck seats. These increased costs will create an economic disadvantage for the 737-700C/-900 without a commensurate expectation of saving lives that otherwise may have been lost.

"Granting of this exemption is in the public interest because it will:

- "1. Not adversely affect flight safety;
- "2. Improve the efficiency of the Model 737-700C/-900;
- "3. Tend to reduce air transportation fares;
- "4. Improve the potential for sales to foreign operators, which in turn improves the U.S. balance of payments.

"Similarly, based on the above justification, and the precedent set on the 777-200, 757-300 and 737-600-700-800, Boeing requests exemption from the rail misalignment and roll test requirements of FAR 25.562(b)(2) for the Boeing Model 737-700C/-900."

A summary of the petition was published in the Federal Register on June 21, 1999 (64 FR 33132). No comments were received.

The Federal Aviation Administration's analysis/summary is as follows:

The petitioner is requesting that Boeing Models 737-700C/-900 be added to existing Exemption No. 6425, which is for relief from the requirement to misalign the seat tracks. Exemption No. 6425 is currently limited to the Boeing Model 737-600/700/800 flight deck seats. These seats are individually mounted, single seats with both vertical and horizontal adjustments to accommodate the differences in the size of crew members. Crew seats are required to be fairly rigid in order to withstand the pilot reaction forces from the flight controls. While it is conceivable that too much flexibility in the seat mounting structure could interfere with the safe operation of the airplane, some flexibility in the seat attachment is considered necessary to conform to likely floor distortions during crash conditions.

The FAA has reviewed the arguments presented by the petitioner in support of the exemption and concludes that it is appropriate to extend the relief previously granted in Exemption No. 6425 to the requested models. The rationale is exactly the same, and there is no reason to treat the new models differently.

In consideration of the foregoing, I find that a grant of exemption is in the public interest and will not affect the level of safety provided by the regulations. Therefore, pursuant to the authority contained in 49 U.S.C. §§ 40113 and 44701, delegated to me by the Administrator (14 CFR § 11.53), the Boeing Commercial Airplane Group is hereby granted an exemption from the floor warpage testing requirements of § 25.562(b)(2) for Boeing Models 737-700C/-900. The following limitations apply to this exemption:

1. This exemption is limited to the Boeing Model 737 family of airplanes and applies only to seats on the flight deck. Flight attendant or passenger seats are not exempted.
2. The flight deck seats are exempted from compliance with the 10 degrees of track misalignment required under § 25.562(b)(2). Compliance with all other requirements of § 25.562 in accordance with the certification basis is required.

Issued in Renton Washington, on August 20, 1999.

/s/ Vi L. Lipski
Vi L. Lipski
Acting Manager
Transport Airplane Directorate
Aircraft Certification Service, ANM-100